CLAIMS

WHAT IS CLAIMED IS:

1. A method of testing a planar lightwave circuit comprising:

coupling a first optical probe having a side-polished optical fiber to the planar lightwave circuit; and

testing an optical pathway within the planar lightwave circuit by transmitting or receiving light through the first optical probe.

2. The method of claim 1 further comprising:

coupling a second optical probe having a second side-polished optical fiber to the planar lightwave circuit; and

using the second optical probe in combination with the first optical probe to send and receive a light beam through the planar lightwave circuit.

3. The method of claim 1 further comprising:

using an index-matching fluid as an interface between the first optical probe and the planar lightwave circuit.

4. The method of claim 1 further comprising:

adding an additional layer of upper cladding to the planar lightwave circuit after removing the first optical probe.

5. The method of claim 1, wherein testing the optical pathway within the planar lightwave circuit is performed on a PLC wafer prior to dicing the PLC wafer.

6. The method of claim 1, wherein testing the optical pathway within the planar lightwave circuit is performed on a PLC die prior to permanently attaching optical fibers to the PLC die.

7. The method of claim 1, wherein testing the optical pathway within the planar lightwave circuit is performed on a PLC die after permanently attaching optical fibers to the PLC die.

8. A method of testing a planar lightwave circuit comprising:

coupling a first optical probe to a first portion of the planar lightwave circuit;

directing a light beam through the first optical probe into the planar lightwave circuit;

coupling a second optical probe to a second portion of the planar lightwave circuit; and

receiving the light beam through the second optical probe, wherein the first and second optical probes comprise side-polished optical fibers.

9. The method of claim 8 further comprising:

using an index-matching fluid as an interface between the first optical probe and the planar lightwave circuit.

10. The method of claim 8, wherein the first optical probe is positioned with six degrees of freedom.

11. The method of claim 8, wherein the second optical probe is positioned with six degrees of freedom.

12. The method of claim 8, wherein directing the light beam through the first optical probe into the planar lightwave circuit is accomplished by coupling a laser to the first optical probe.

13. The method of claim 8, wherein testing the planar lightwave circuit is performed on a PLC wafer comprising multiple identical PLC dice.

14. The method of claim 8, wherein testing the planar lightwave circuit is performed on a PLC die prior to permanently attaching optical fibers to the PLC die.

15. The method of claim 8, wherein testing the planar lightwave circuit is performed on a PLC die after permanently attaching optical fibers to the PLC die.

16. An optical probe comprising:

an optical fiber that has been side-polished; and

an alignment stage to hold the optical fiber in position as a directional coupler with a planar waveguide.

17. The optical probe of claim 16, wherein the alignment stage allows six degrees of freedom for movement of the optical fiber.

18. The optical probe of claim 16 further comprising:

a laser coupled to provide a light beam into optical fiber.

19. The optical probe of claim 16 further comprising:

a photodetector coupled to receive a light beam through the optical fiber.

20. A method of making an optical probe comprising an optical fiber having a core and an outer cladding, the method comprising:

polishing a side of the optical fiber until the core of the optical fiber is exposed; and

attaching a first portion of the optical fiber to an alignment stage.

21. The method of claim 20 further comprising:

attaching a second portion of the optical fiber to a light source.

22. The method of claim 20 further comprising:

attaching a second portion of the optical fiber to photodetector.